

Claims

We claim:

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1 1. A liquid crystal display, comprising:

2 a polarizer operably coupled to a beam of incident light
3 to pass a beam of polarized light having a polarization axis;

4 a pixel sequence operably coupled to said polarizer and
5 said beam of polarized light, wherein said pixel sequence
6 comprises liquid crystal display pixels optically aligned in
7 series with said beam of polarized light, wherein an angle of
8 said polarization axis may be varied by each of said pixels;
9 and

10 an analyzer operably coupled to said polarizer, said pixel
11 sequence, and said beam of polarized light to pass a gray-scale
12 portion of said beam of polarized light from said pixel
13 sequence as a function of said angle.

1 2. The liquid crystal display of claim 1, further comprising a
2 gray-scale control operably coupled to each of said pixels for
3 varying said angle.

1 3. The liquid crystal display of claim 1, further comprising an

2 array of said pixel sequences arranged into rows and columns
3 operably coupled to said polarizer, said beam of polarized
4 light, and said analyzer.

1 4. The liquid crystal display of claim 2, wherein said gray-
2 scale control includes electronically programmable driver and
3 interface circuitry for calibrating said pixel sequence to a
4 gray-scale standard.

1 5. The liquid crystal display of claim 2, wherein said gray-
2 scale control includes electronically programmable driver and
3 interface circuitry for correcting a failed pixel within said
4 sequence.

1 6. The liquid crystal display of claim 1, wherein said each of
2 said pixels is formed on a transparent substrate.

1 7. The liquid crystal display of claim 6, wherein said
2 substrate comprises sapphire.

1 8. The liquid crystal display of claim 1, wherein said pixels
2 are formed in an active matrix liquid crystal display.

1 9. The liquid crystal display of claim 4, wherein said gray-
2 scale control is programmed to a color having a corresponding

3 gray-scale value.

1 10. The liquid crystal display of claim 1, wherein said pixels
2 comprise a liquid crystal material, wherein said liquid crystal
3 material is one of nematic, supertwisted nematic, or
4 ferroelectric liquid crystals.

1 11. The liquid crystal display of claim 2, further comprising:

2 transparent substrates, wherein said gray-scale control
3 further comprises drive circuitry formed on said substrates,

4 transparent pixel electrodes operably coupled to said
5 drive circuitry, wherein said pixel electrodes are formed in a
6 transparent display region on each of said substrates; and

7 a liquid crystal material operably coupled to said
8 transparent display regions to form said pixels.